



Australian Government

PMBPROD338 Repair heavy off-the-road tyres

Release: 1

PMBPROD338 Repair heavy off-the-road tyres

Modification History

Release 1. Supersedes and is equivalent to PMBPROD338A Repair heavy off-the-road tyres

Application

This unit of competency covers the skills and knowledge required to repair heavy off-the-road tyres. It applies to tyres defined by AS 4457.2-2008 Earth-moving machinery - Off-the-road wheels, rims and tyres - Maintenance and repair - Tyres (or its replacement) or similar tyres.

This unit of competency applies to operators who are required to select and prepare tools/equipment and materials, prepare surfaces and materials, make repairs and solve problems within area of responsibility.

This unit of competency applies to an operator demonstrating theoretical and technical knowledge and well developed skills in situations that require some discretion and judgement. The operator may work alone or as a member of a team or group and will work in liaison with other shift team members, team leader and supervisor, as appropriate.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil

Competency Field

Production

Unit Sector

Not applicable

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

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|--------------------------|---|
| 1 Prepare for job | 1.1 Move tyre into position |
| | 1.2 Secure tyre ready for repair |
| | 1.3 Determine repair stock and cure time required from injury dimensions |

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| | | 1.4 | Select required patches and rubber repair stock |
| | | 1.5 | Select, check and prepare tooling |
| | | 1.6 | Acclimate required repair products according to the supplier recommendation |
| | | 1.7 | Check and wear required personal protective equipment (PPE) |
| 2 | Prepare substrates | 2.1 | Prepare surfaces as required |
| | | 2.2 | Apply adhesive to repair surfaces according to procedures |
| | | 2.3 | Allow surfaces to 'prime' according to procedures |
| 3 | Repair injury | 3.1 | Choose correct repair materials |
| | | 3.2 | Check compatibility of materials used |
| | | 3.3 | Check maximum pre-heating temperatures |
| | | 3.4 | Repair tyre components as required |
| | | 3.5 | Fill injury according to procedure |
| 4 | Patch injury as required | 4.1 | Review correct patch size |
| | | 4.2 | Remove inner liner as required |
| | | 4.3 | Prepare surfaces as required |
| | | 4.4 | Prepare patch according to procedure |
| | | 4.5 | Install patch according to procedure |
| | | 4.6 | Follow pressurisation and/or curing instruction |
| 5 | Complete repair | 5.1 | Prepare injury for curing |
| | | 5.2 | Complete any required paperwork |

		5.3	Complete housekeeping according to procedures
6	Anticipate and solve problems	6.1	Recognise a problem or a potential problem
		6.2	Determine problems needing priority action
		6.3	Refer problems outside area of responsibility to appropriate person, with possible causes
		6.4	Seek information and assistance as required to solve problems
		6.5	Solve problems within area of responsibility
		6.6	Follow through items initiated until final resolution has occurred

Foundation Skills

This section describes those required skills (language, literacy and numeracy) that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Regulatory framework The latest version of all legislation, regulations, industry codes of practice and Australian/international standards, or the version specified by the local regulatory authority, must be used.

Applicable legislation, regulations, standards and codes of practice include:

- health, safety and environmental (HSE) legislation, regulations and codes of practice relevant to the workplace, manual handling and hazardous materials
- AS 4457.2-2008 Earth-moving machinery - Off-the-road wheels, rims and tyres - Maintenance and repair – Tyres, or its replacement
- other Australian/international standards relevant to the materials being used and products being made

- any relevant licence and certification requirements.

All operations to which this unit applies are subject to stringent HSE requirements, which may be imposed through state/territory or federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and such requirements the legislative requirements take precedence.

Procedures All operations must be performed in accordance with relevant procedures.

Procedures are written, verbal, visual, computer-based or in some other form, and include one or any combination of:

- emergency procedures
- work instructions
- standard operating procedures (SOPs)
- safe work method statements (SWMS)
- formulas/recipes
- batch sheets
- temporary instructions
- any similar instructions provided for the smooth running of the plant.

Tools and equipment

Tools and equipment include:

- knives, scissors and other cutting tools
- rubber extruders and other preparation equipment
- stitching tools.

Additional tools and equipment will be selected as required from:

- mounts and stands
- chocks
- wall or floor mounted frames which may be manually, electrically or hydraulically operated
- hoists/lifting equipment not requiring any special permits or licences
- manual handling aids, such as hand carts and trolleys
- relevant personal protective equipment (PPE).

Problems Routine and non-routine problems must be resolved.

Non-routine problems must be resolved by applying operational knowledge to develop new solutions, either individually or in collaboration with relevant experts, to:

- determine problems needing action
- determine possible fault causes
- develop solutions to problems which do not have a known solution
- follow through items initiated until final resolution has occurred
- report problems outside area of responsibility to designated person.

Non-routine problems are unexpected problems or variations of previous problems and include one or more of:

- variations in quality
- emergency situations
- intermittent faults.

Operational knowledge includes one or more of:

- procedures
- training
- technical information, such as journals and engineering specifications
- remembered experience
- relevant knowledge obtained from appropriate people.

Routine problems are predictable and have known solutions and include one or more of:

- equipment malfunctions
- hidden damage
- broken chords
- cord body fabric damage
- variations in materials.

Unit Mapping Information

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Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=932aacef-7947-4c80-acc6-593719fe4090>

Assessment Requirements for PMBPROD338 Repair heavy off-the-road tyres

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria and demonstrate the ability to:

- read and interpret procedures, job specifications, material labels and safety data sheets (SDS)
- select and prepare equipment/tools and materials to meet specifications
- prepare substrate
- make repair to meet specifications, including at least two (2) of:
 - cuts, abrasion, splits, cracks and crazing
 - separations within the structure, internal or surface deformities
 - penetrations into and through the casing/carcass
- make repair in locations, including at least two (2) of:
 - tread or crown, including steel components
 - shoulder or sidewall
 - bead area
 - liner
- identify hazards and apply relevant hazard controls
- apply safety procedures
- apply housekeeping procedures
- apply waste management procedures
- recognise early warning signs of equipment/processes needing attention or with potential problems
- distinguish between causes of problems, including:
 - operational problems
 - materials properties
 - process variables
 - raw material variations/contamination
 - process abnormalities
 - procedural errors
- recognise and prioritise problems requiring action
- resolve routine and non-routine problems
- communicate effectively with team/work group and supervisors
- complete workplace records

- do basic arithmetical manipulations, including additions, subtractions, divisions, fractions and percentages.

Knowledge Evidence

Must provide evidence that demonstrates knowledge relevant to their job sufficient to operate independently and to solve routine and non-routine problems, including knowledge of:

- heavy off-the-road tyre construction
- radial and bias ply construction
- common injuries to heavy off-the-road tyres and their indicators
- common hidden injuries and their indicators, including
 - cuts
 - oxidation
 - separations
- methods for repairing injuries to tyres, including:
 - cuts, abrasion, splits, cracks and crazing
 - separations within the structure
 - deformities both surface and internal
 - penetrations into and through the casing/carcass
- methods for repairing injuries to tyres in:
 - tread or crown, including steel components
 - shoulder
 - sidewall
 - bead area
 - liner
- types of injuries which do not need repairing, injuries which are repairable and injuries which either individually or in the sum should not be repaired
- methods of identifying lug/position identification
- impact of significantly faulty tyres falsely passing inspection
- factors which may affect inspection output or product quality and appropriate remedies
- routine and non-routine problems that may arise, the range of possible causes and appropriate actions
- organisation procedures relevant to the work environment/job role
- hierarchy of control
- hazards that may arise in the job/work environment and:
 - their possible causes
 - potential consequences
 - appropriate risk controls.

Assessment Conditions

- The unit should be assessed holistically and the judgement of competence shall be based on a holistic assessment of the evidence.
- In all plants it may be appropriate to assess this unit concurrently with units such as:
 - teamwork
 - communication.
- The collection of performance evidence:
 - should occur over a range of situations which include typical disruptions to normal, smooth operation of an operating plant
 - will typically include a supervisor/third-party report or other evidence, focusing on consistent performance and problem recognition and solving. A supervisor/third-party report must be prepared by someone who has a direct, relevant, current relationship with the person being assessed and who is in a position to form a judgement on workplace performance relevant to the unit of competency
 - must include the use of an appropriate industrial item of equipment requiring demonstration of operation, start and stop procedures and responding to problems
 - may use industry-based simulation for all or part of the unit particularly where safety, lack of opportunity or significant cost is an issue.
- Assessment should occur in operational workplace situations. Where this is not possible or where personal safety or environmental damage are limiting factors assessment must occur in a sufficiently rigorous simulated environment that reflects realistic operational workplace conditions. This must cover all aspects of workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.
- Assessment in a simulated environment should use evidence collected from demonstration of skills and one or more of:
 - walk-throughs
 - pilot plant operation
 - industry-based case studies/scenarios
 - ‘what ifs’.
- Knowledge evidence may be collected concurrently with performance evidence or through an independent process, such as workbooks, written assessments or interviews.
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.
- Conditions for assessment must include access to all tools, equipment, materials and documentation required, including relevant workplace procedures, product and manufacturing specifications associated with this unit.
- The regulatory framework will be reflected in workplace policies and procedures and is not required to be independently assessed.
- Foundation skills are integral to competent performance of the unit and should not be assessed separately.
- Assessors must satisfy the assessor competency requirements that are in place at the time of the assessment as set by the VET regulator.

- In addition the assessor or anyone acting in subject matter expert role in assessment shall demonstrate both technical competency and currency. If the assessor cannot demonstrate technical competency and currency they shall assess with a subject matter expert who does meet these requirements.
- Technical competence can be demonstrated through one or more of:
 - relevant VET or other qualification/Statement of Attainment
 - appropriate workplace experience undertaking the type of work being assessed under routine and non-routine conditions
 - appropriate workplace experience supervising/evaluating the type of work being assessed under routine and non-routine conditions
- Currency can be demonstrated through one or more of:
 - being currently employed undertaking the type of work being assessed
 - being employed by the organisation undertaking the type of work being assessed and having maintained currency in accordance with that organisation's policies and procedures
 - having consulted/had contact with an organisation undertaking the type of work being assessed within the last twelve months, the consultation/contact being related to assessment
 - conducting on the job training/assessments of the type of work being assessed
 - being an active member of a relevant professional body and participating in activities relevant to the assessment of this type of work.

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